HARRIS, WILTSHIRE & GRANNIS LLP

1200 EIGHTEENTH STREET, NW
WASHINGTON, DC 20036

TEL 202.730.1300 FAX 202.730.1301
WWW.HARRISWILTSHIRE.COM

ATTORNEYS AT LAW

May 3, 2007

Ex Parte

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

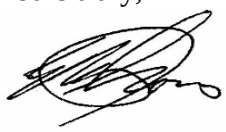
Re: TV White Spaces Proceeding, ET Docket Nos. 04-186, 02-380

Dear Ms. Dortch:

On May 2, 2007, on behalf of the White Spaces Coalition,[1] Srihari Narlanka of Microsoft and the undersigned submitted two additional prototype devices to the FCC Laboratory for testing. We also met with Steven Jones, Steven Martin, and Thomas Phillips of the Office of Engineering and Technology to provide instruction on the operation of the devices, which use a filter that enables transmission within the parameters described in the Coalition's reply comments. Finally, we provided OET staff with a revised version of the device manual, attached hereto.[2]

Pursuant to the Commission's rules, a copy of this notice is being filed electronically in the above-referenced dockets. If you require any additional information please contact the undersigned at (202) 730-1305.

Yours truly,



Edmond J. Thomas
Senior Technology Policy Advisor

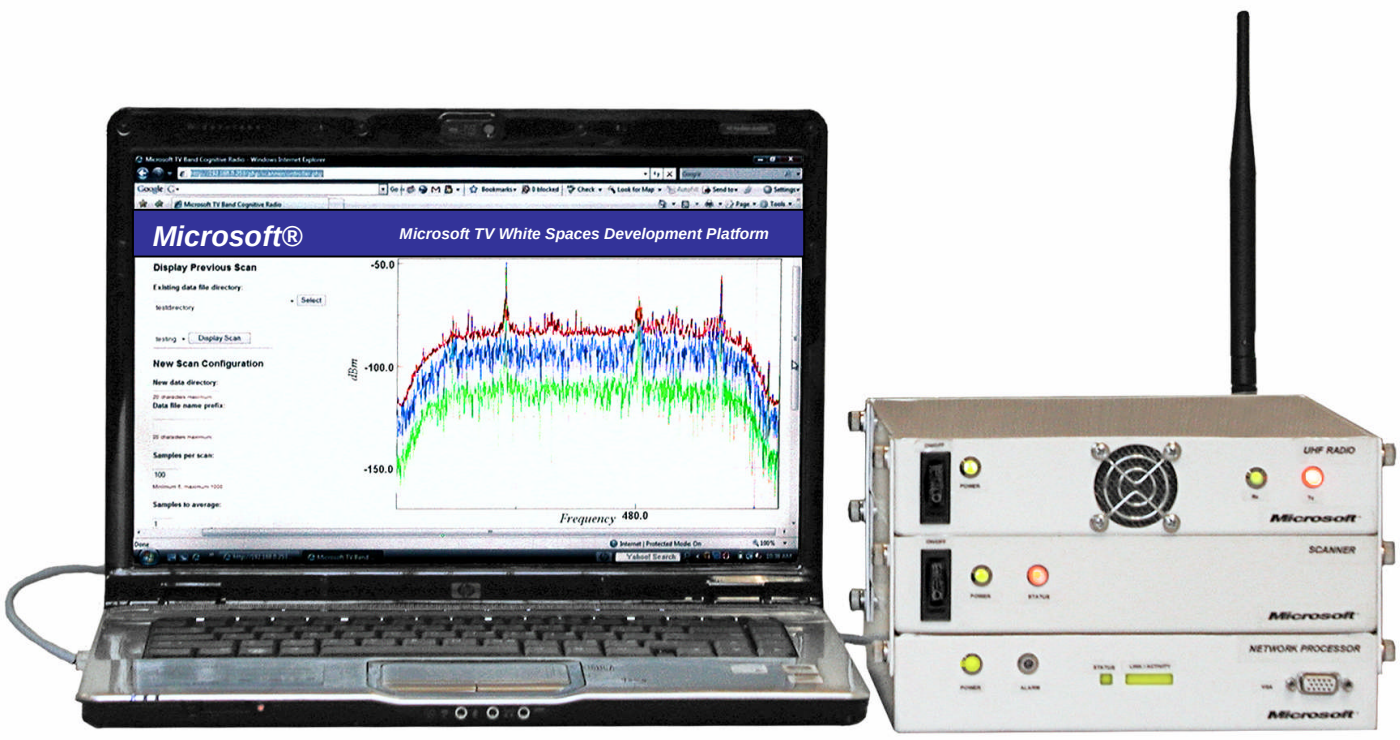
---

1 The White Spaces Coalition's members include Dell, Inc., EarthLink, Inc., Google, Inc., Hewlett-Packard Co., Intel Corp., Microsoft Corp., and Philips Electronics North America Corp.

2 The device manual provided to OET on May 2 inadvertently contained a footer indicating that the manual contained proprietary information. While this footer has been removed from attached copy of the manual and some non-substantive formatting changes have been made, the contents of the attached manual and the manual provided to OET are otherwise identical.

cc: Julius Knapp
Rashmi Doshi
Steven Jones
Steven Martin
Thomas Phillips

Microsoft TV White Spaces Development Platform Version 2



Microsoft Corporation
Srihari Narlanka
One Microsoft Way
Redmond, WA 98052
(425) 703-8661
sriharin@microsoft.com

System Overview
Demonstrator

Figures and Tables:

1. SYSTEM OBJECTIVE AND OVERVIEW

The Microsoft TV White Spaces Development Platform is a development platform to explore, develop and evaluate technologies required to create a commercially viable cognitive radio-based communications network product. With the Microsoft Cognitive Radio, developers will be able to:

- Create spectrum scanning and signal feature recognition software and hardware used to co-exist and avoid interfering with incumbent operators.
- Develop and refine transmit power control algorithms.
- Explore and test waveforms and modulation techniques with minimal interference with expected TV band signals.
- Perform on-air propagation and coverage measurements.

2. SYSTEM OPERATION

The Microsoft TV White Spaces Development Platform assembly consists of two core system assemblies:

- A Wide-band Spectrum Scanner and Network Processor and a tunable UHF Half-Duplex Transceiver controlled by the Network Processor; and
- A Windows-based PC using the Internet Explorer browser as the command and control interface.

2.1 System Operation

- A broadband 521 to 698 MHz computer controlled frequency scanner and high-speed digitizer capable of incrementally scanning UHF TV channels 21 through 51 in 6 MHz segments. The digitized time domain 6 MHz scan information is passed to the network analyzer where a 2048 FFT is performed.

- Signal feature templates for DTV, NTSC and wireless microphone devices are sequentially applied to the FFT information to identify occupied DTV or NTSC channels. Non-occupied channels are declared potential white channels and subsequently scanned for potential narrow band incumbents such as wireless microphones.

- Scanner control and discovery information is presented via the Internet Explorer Web Browser.

2.2 UHF Radio Network Processor Assembly

The UHF Tx/Rx Assembly consists of three sub-components:

- S-Band (2.4 GHz) 802.11g OFDM modem located in the Network Processor
- Half-duplex S-Band to UHF block converter
- Network Processor Browser for Frequency and Power Control

UHF radio specifications are presented in Table 1.

3. INTERNET EXPLORER SCANNER AND TX PANELS

The TV white spaces radio assembly is controlled via a Windows® Internet Explorer browser control panel. Specific controls include:

- The ability to select any operating frequency between 521 to 698 MHz in 1 MHz increments
- Tx power output control from -10 dBm to +20 dBm
- Ability to search individual UHF TV channel groups for occupied DTV or NTSC channels.
- Ability to search out candidate white channels for wireless microphone-like signals.

3.1 Basic Scanner Specifications

- Frequency Range: 512 to 698 MHz
- Frequency Step: 1 MHz
- Scan Frame Bandwidth: 8 MHz
- Scan Frame FFT Size: 2048 points
- FFT Bin Size: 3.9 KHz
- Minimum Discernible DTV Pilot Tone Sensitivity: - 114 dBm
- Gain Selections: In-line 20 dB, High-Intercept LNA
- Recording Capability: Digitized records of scans can be created and played back for analysis
- Minimum Discernible Wireless Microphone Detection Sensitivity: -114 dBm
- Measurement Accuracy: ± 3 dB

UHF RADIO SPECIFICATIONS

S-Band to UHF Translator	
S-Band Modem Tx Output: Frequency range Power Level	 2400 to 2500 MHz -10 to +20 dBm
Signal bandwidth	MHz, typical
Signal gain to UHF port	-25 dB to +25 dB Adjustable in 1 dB increments
UHF Tx Output: Frequency range Tx 1 dB Compression	 521 to 698 MHz +28 dBm, min. CTPC
Spectral Inversion UHF Tx Tuning Increments	None 1 MHz
UHF to S-Band Translator	
UHF Rx Input: Frequency range Power Level Tuning increments Receive 1 dB compression	 521 to 698 MHz -25 to -90 dBm 1 MHz -20 dBm (at the Rx input)
3 dB Rx Signal bandwidth	4.25 MHz
Receive chain gain: UHF to S-Band translation UHF receive band monitor	 16 dB, typical 20 dB, typical
Rx Noise Figure	5 dB, max.
S-Band Modem Receiver Input: Frequency range Power Level	 2400 to 2500 MHz -75 dBm to -10 dBm, typical
Spectral Inversion	None
Environmental:	
Internal Frequency Reference	10 MHz ± 2.5 ppm
LO Integrated Phase noise	5° rms, max. (using 1 MHz tuning increments)
Temperature Range (Operating)	10°C to 50°C
All RF Port impedances	50 Ohms, nominal
RF Connectors	SMA, female
Auxiliary RF Ports: S-Band power monitor Scan Rx Separate Rx and Tx antennas	 Log detector output UHF receive monitor Factory selected option
DC Power requirements: Voltage Current	 +12 ± 0.1 Vdc 900 mA, typical
Computer control interface	RS-232 Serial or USB
Transmit control interface	Automatic or external
Digital control inputs: External TR Select Reset	 Selects either Tx or Rx mode Processor reset
Digital monitor output	TR Mode
LED Indicators	DC Power, Synthesizer Lock, Tx, Rx

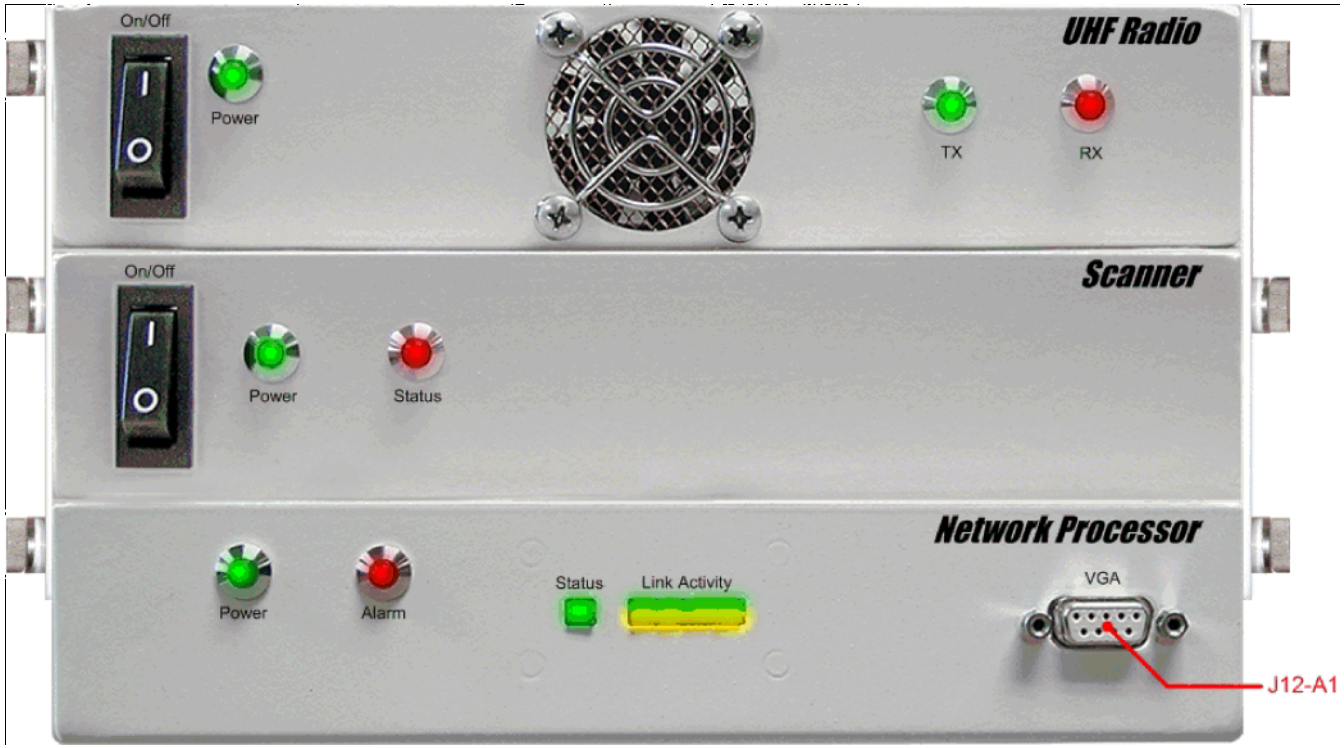


Figure 1. Front View of Microsoft TV White Spaces Development Platform

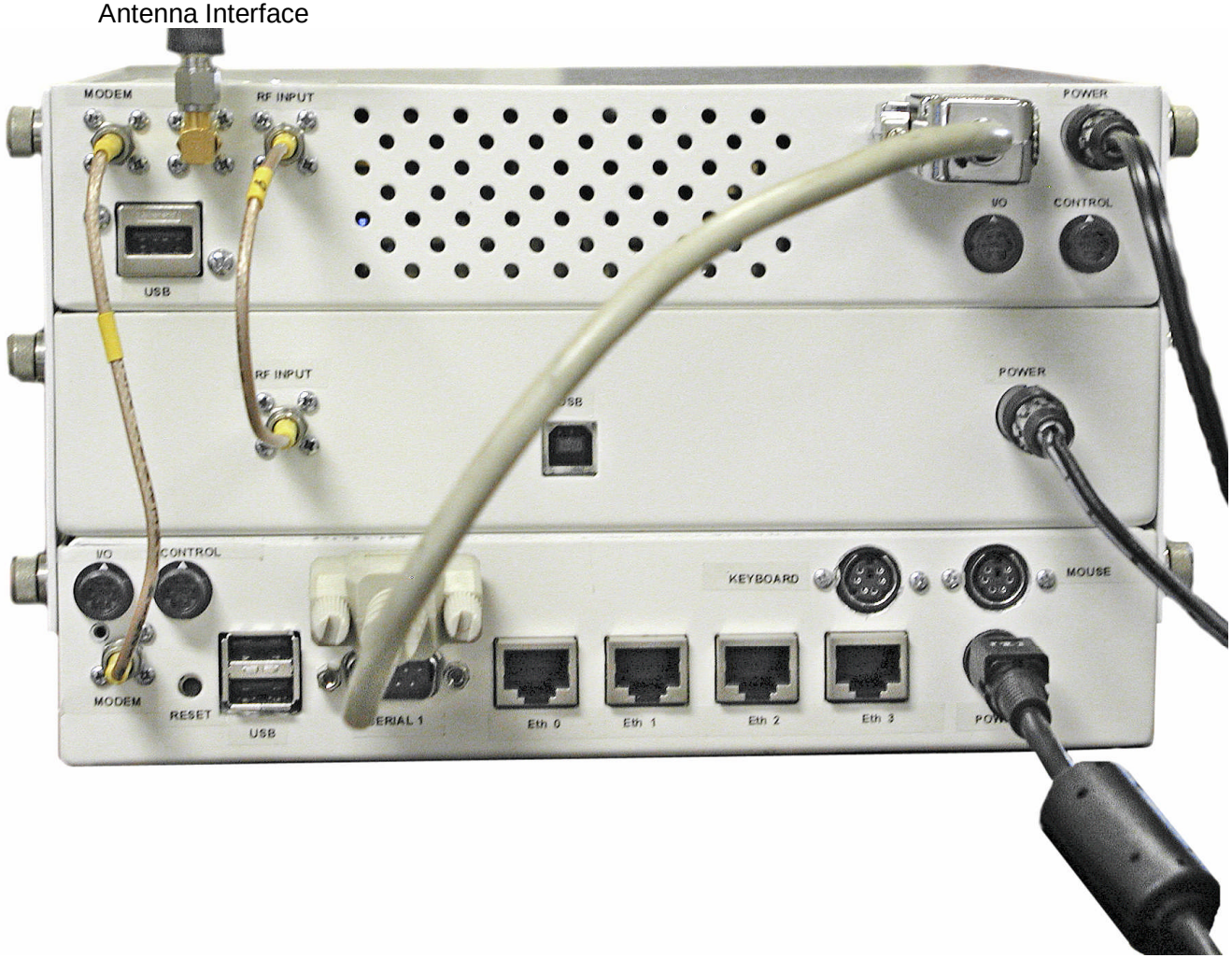


Figure 2. Rear View of Microsoft TV White Spaces Development Platform with Interconnecting Cables

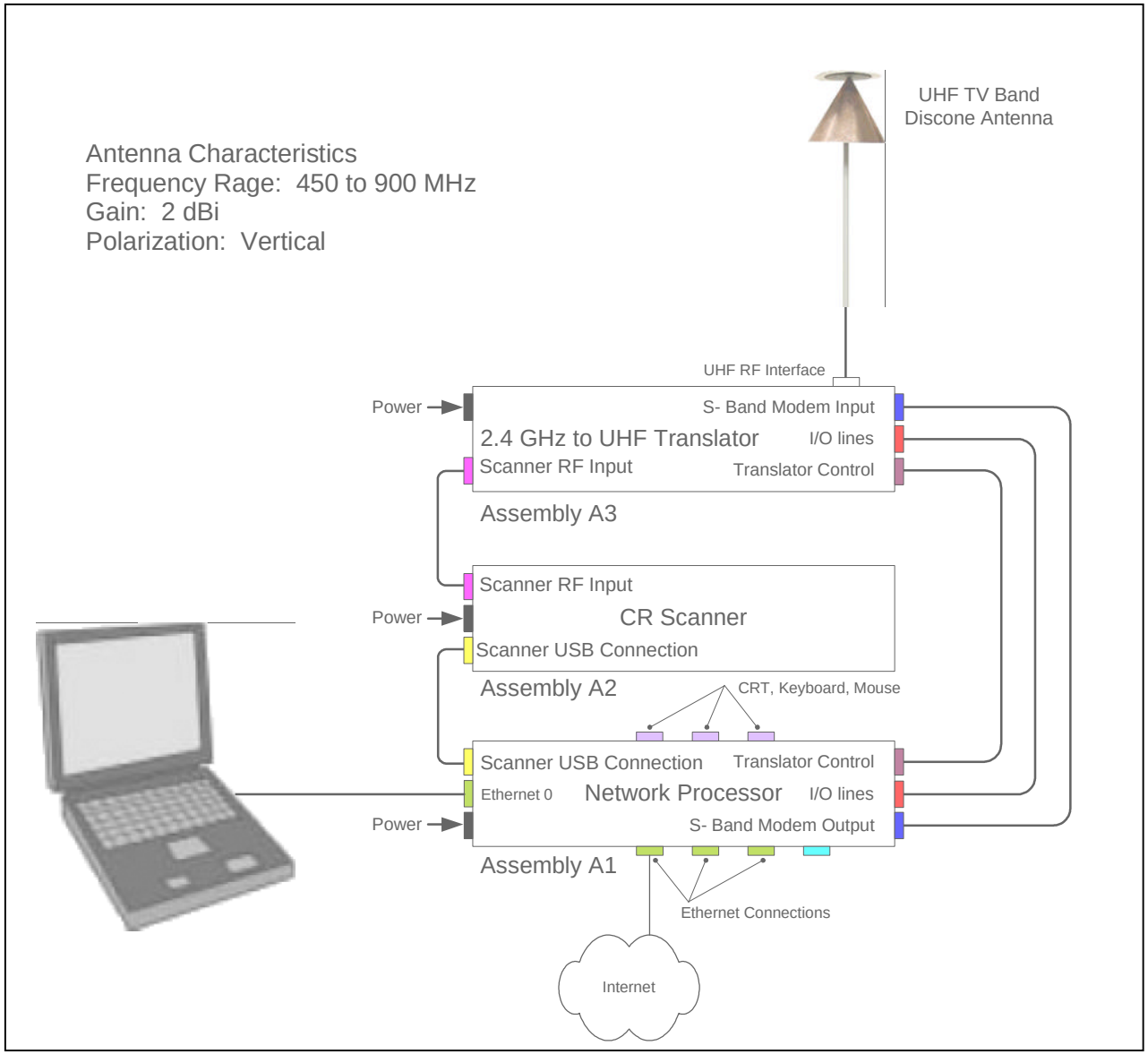


Figure 3. System Interconnection Diagram

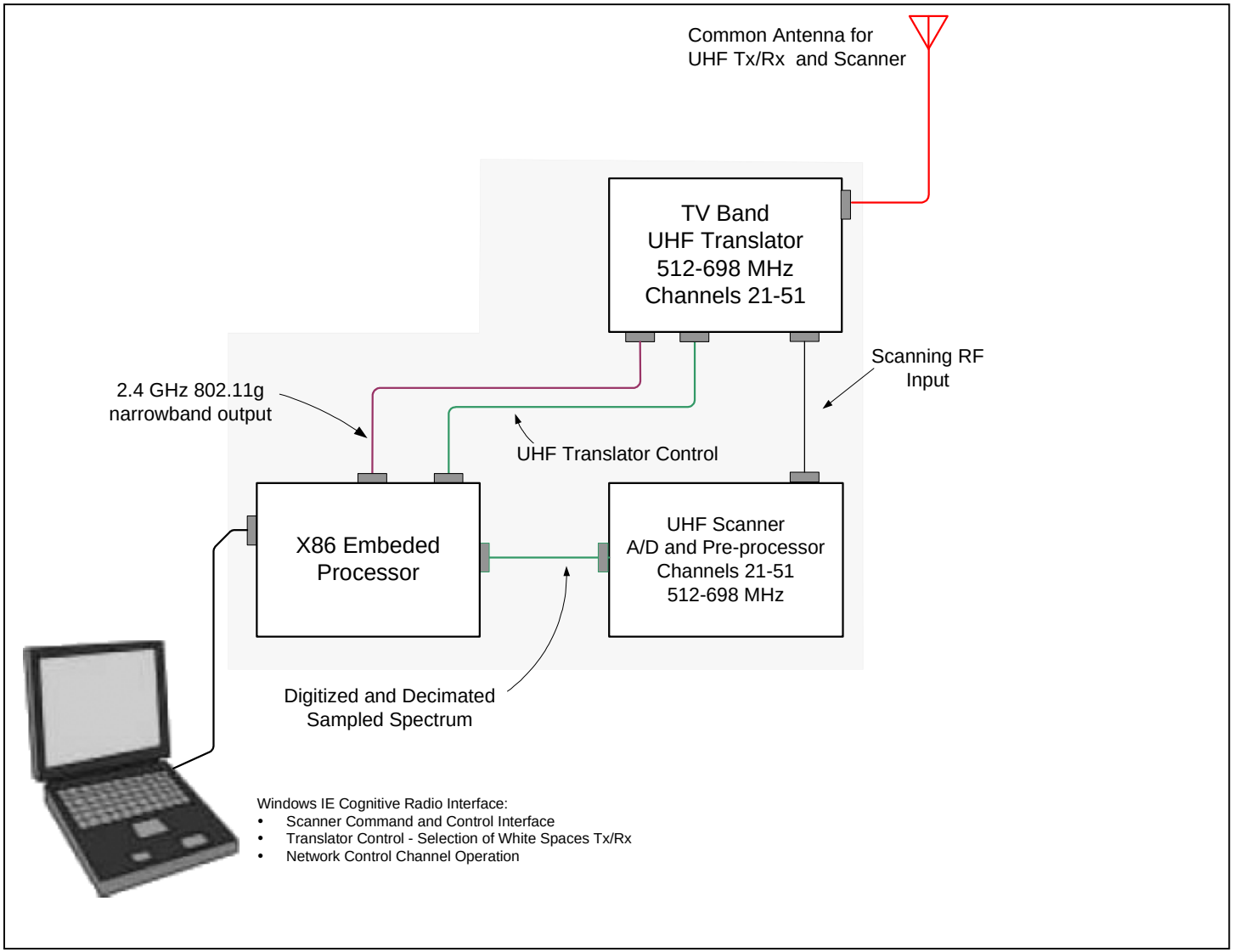


Figure 4. Microsoft TV White Spaces Development Platform Functional Block Diagram

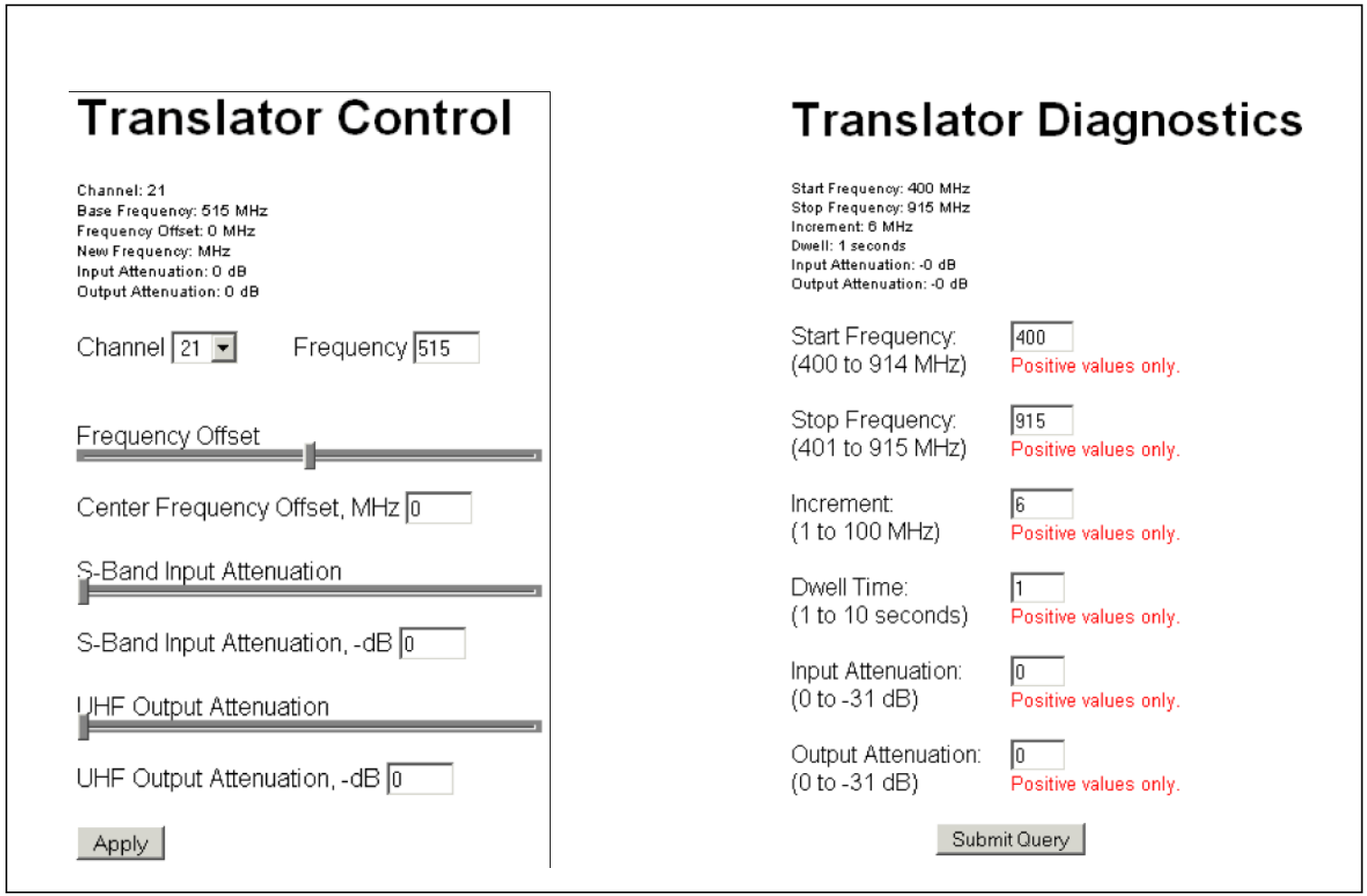


Figure 5. Translator Control Panel

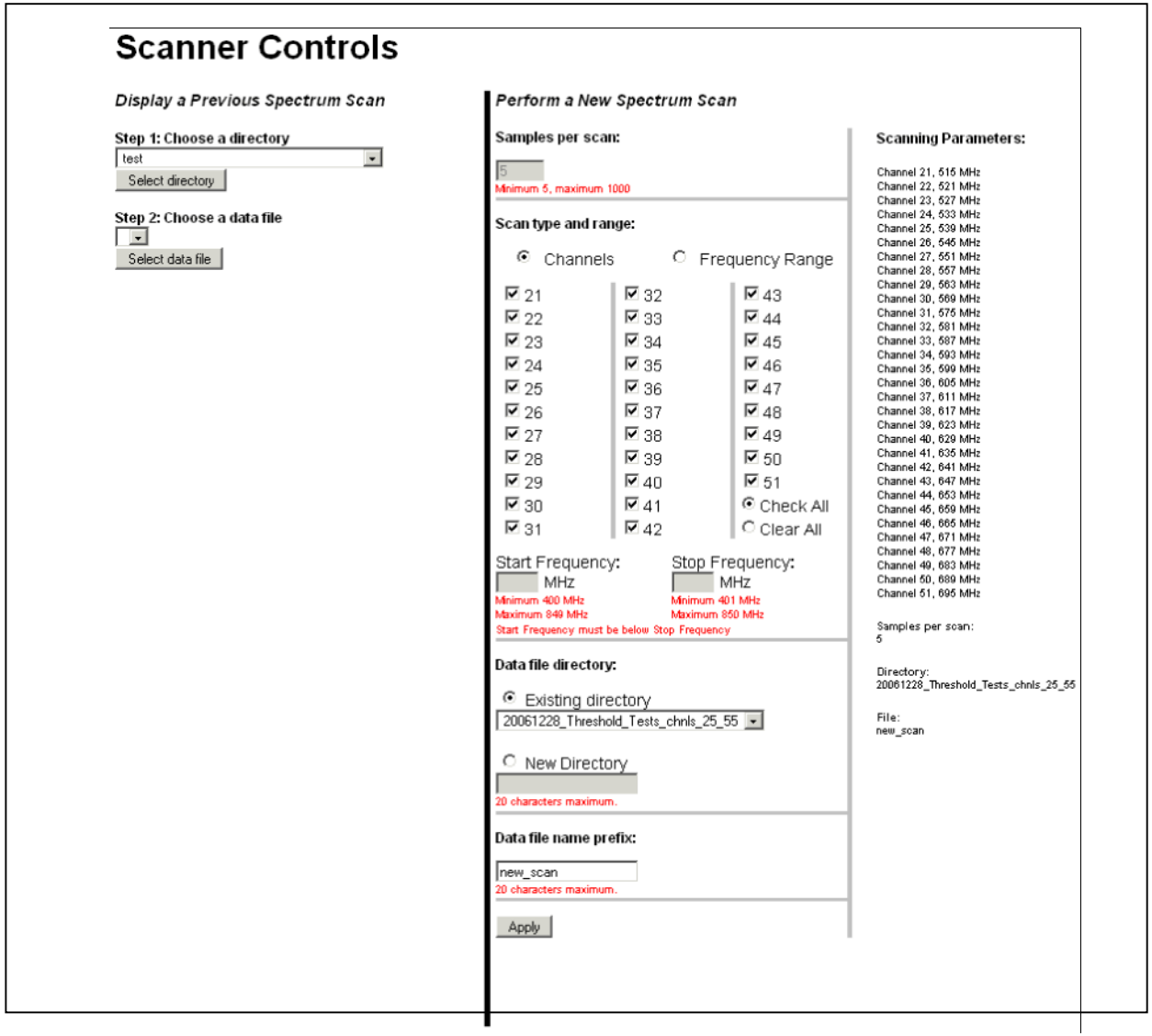


Figure 6. Scanner Control Panel

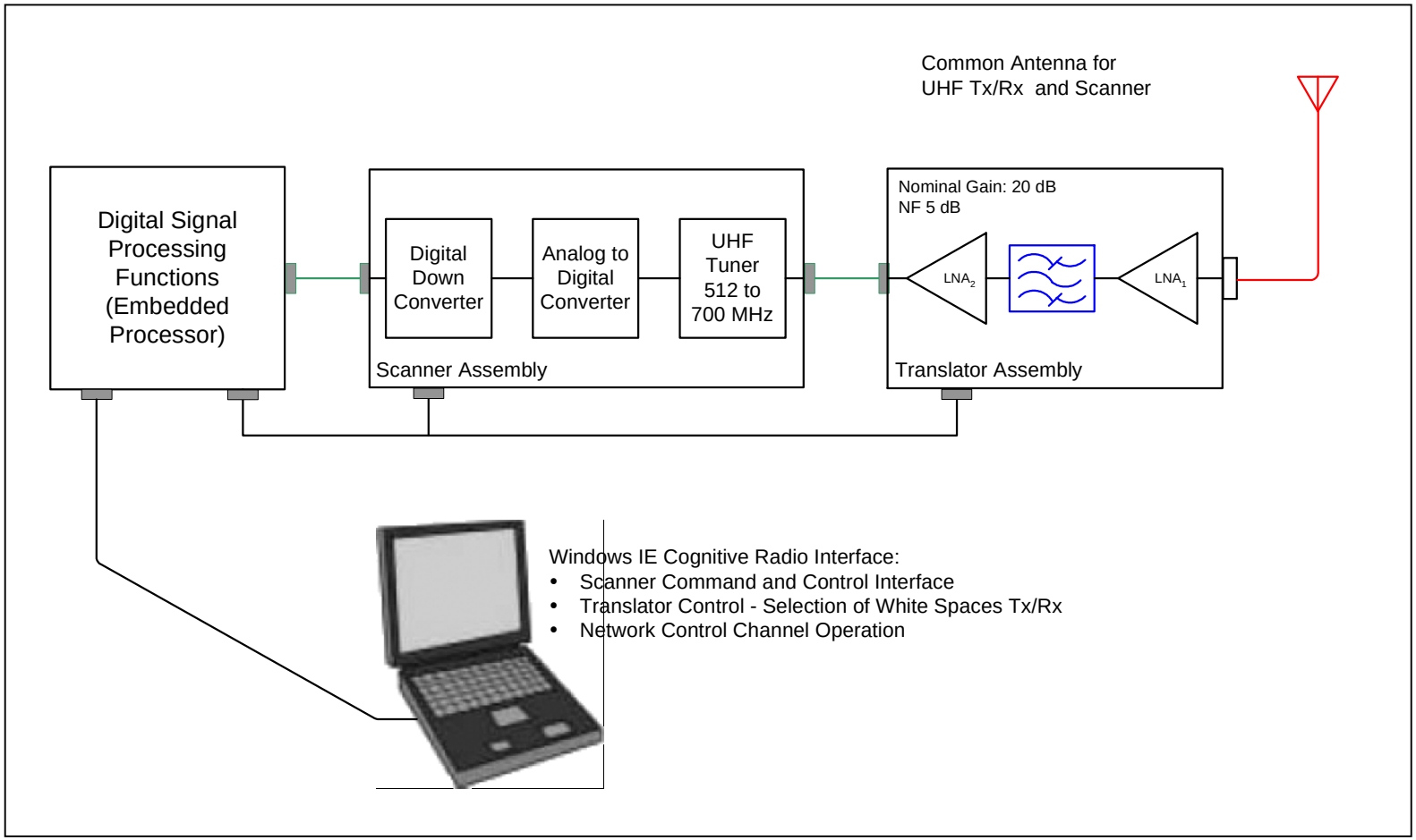


Figure 7. Scanner Functional Flow

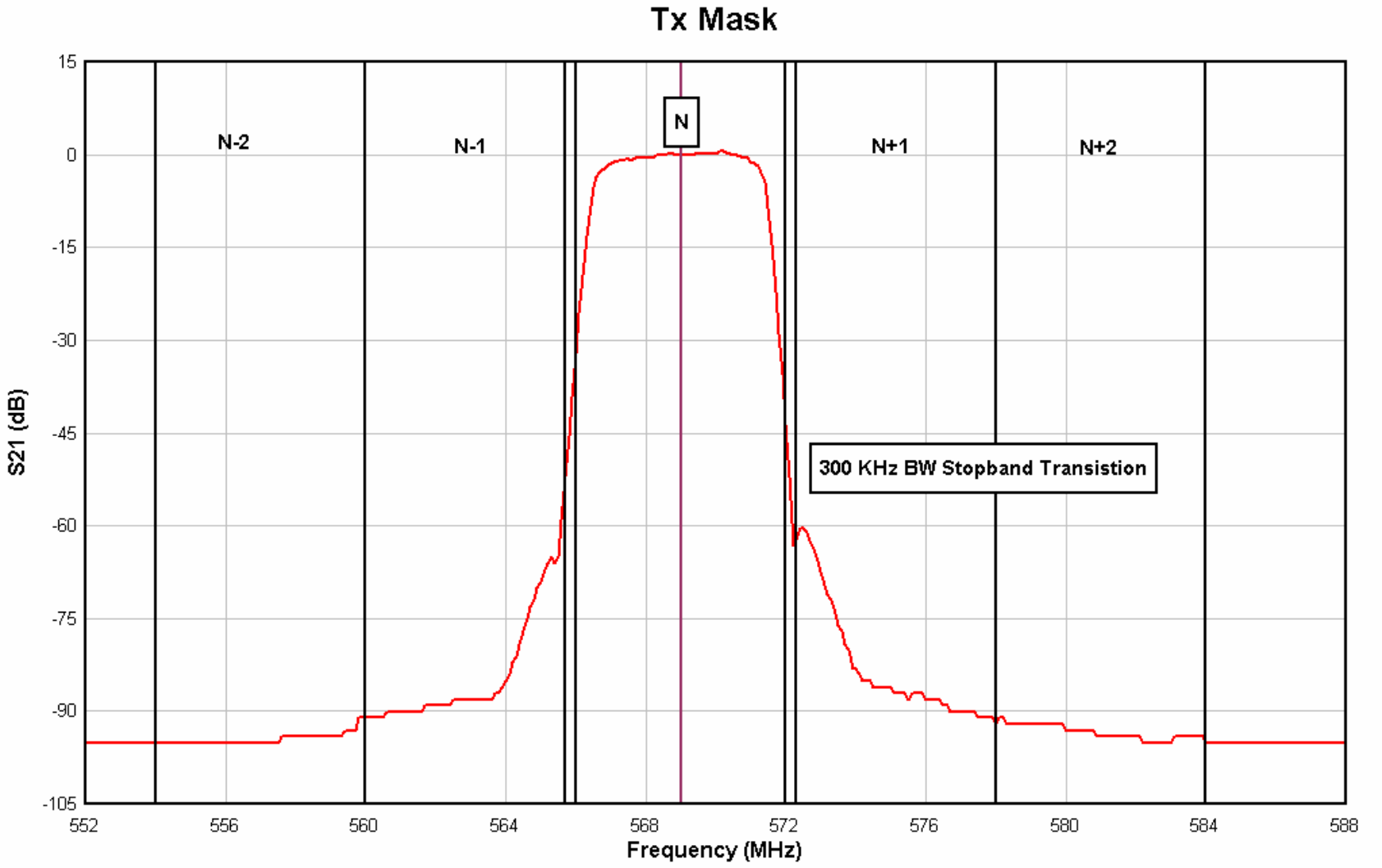


Figure 8. Transmit Mask.

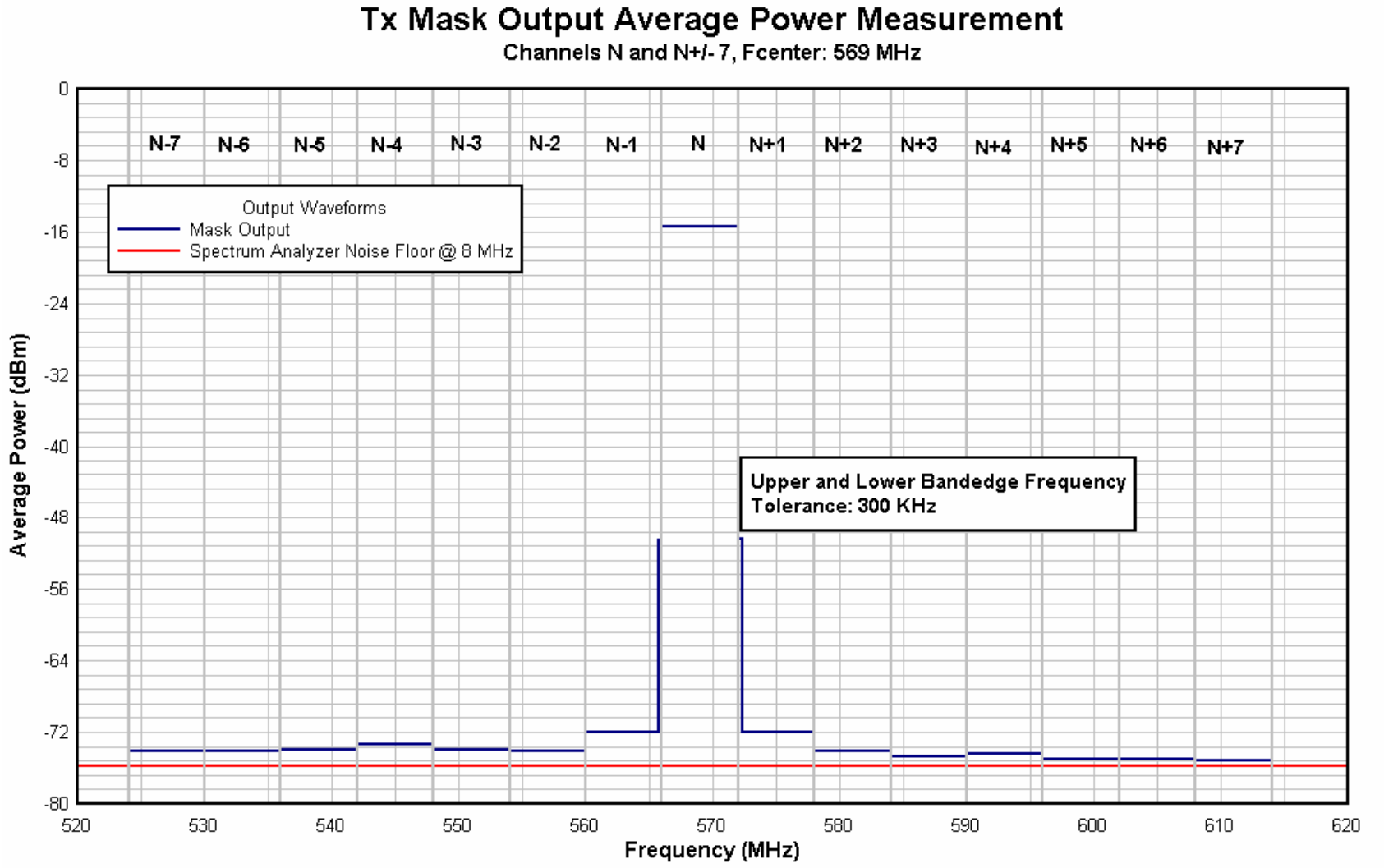


Figure 9. Tx Mask Output Average Power Measurement.